

### Overview

The NXR-ZRP-PRO NetLinX ZigBee® Pro Repeater (**FG5791-03**) is a ZigBee wireless repeater, designed to expand the range of a ZigBee Pro network. The NXR-ZRP-PRO features one megabit of external memory and a ZigBee Pro module. Through an NXR-ZGW-PRO gateway, it can be controlled via a web server interface.

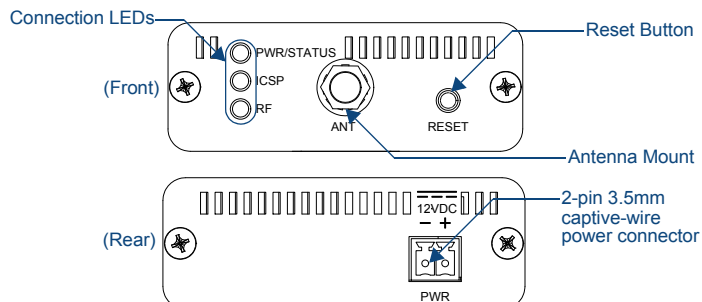


FIG. 1 The NXR-ZRP-PRO Device (front and rear)

### Specifications

NXR-ZRP-PRO (FG5791-03) Specifications	
Dimensions (HWD):	1.00" x 2.50" x 3.50" (23.01 mm x 64.00 mm x 87.00 mm) <b>Note:</b> depth does not include antenna
Weight:	0.25 lbs (113.39g)
Power:	• 10.5 - 18 VDC; (13.5 VDC nominal operation voltage)
Memory:	• 1 Megabit external memory
Radio Specifications:	
Frequency	2.4GHz
Operating channels	11 - 26
Modulation technique	DSS
Output power	Region/country specific
Coverage area	165 feet (50.2m) in a typical multiwall structure
Firmware/Software Specifications:	
Management	Built-in browser-based management with User Name/ Password authentication (through an NXR-ZGW-PRO only)
IP configuration	Static IP or DHCP client through an NXR-ZGW-PRO (default is DHCP/Zeroconf)
Communications	• ZigBee Pro 2007 • The NXR-ZRP-PRO communicates with a NetLinX Master via an NXR-ZGW-PRO.
Front Components:	
LEDs	<ul style="list-style-type: none"> <li>• <b>PWR/STATUS</b> - Green LED blinks to indicate the device is powered but not commissioned to a network. A solid light indicates a device powered up and commissioned; Power OFF is indicated with no light.</li> <li>• <b>ICSP</b> - The LED is solid when the device is connected to the gateway and off when not connected.</li> <li>• <b>RF</b> - The LED is solid when end devices are connected; end devices not connected is indicated with no LED light; the LED blinks to indicate activity.</li> </ul>
Antenna Mount	A reverse SMA connection that supports a 2.4GHz antenna.
ID Button	Press and hold for approximately 10 seconds to return the NXR-ZRP-PRO to factory default settings.
Rear Components:	
Power connector	• 2-pin 3.5mm captive-wire connector
Certifications:	<ul style="list-style-type: none"> <li>• FCC ID: CWU-NXR-ZGW</li> <li>• IC: 5078A-NXRZGW</li> <li>• CE</li> <li>• IEC-60950</li> <li>• Japan Approval</li> <li>• ZigBee Certified</li> </ul>

### NXR-ZRP-PRO Specifications (Cont.)

Operating/Storage Environments:	<ul style="list-style-type: none"> <li>• Operating Temperature: -30°C (-22°F) to 70°C (158°F)</li> <li>• Relative Humidity: 5% to 85% non-condensing; intended for indoor use only</li> </ul>
Included Accessories:	<ul style="list-style-type: none"> <li>• Rubber feet</li> <li>• Velcro mounting strip</li> <li>• 2.4GHZ, MONO, RSMA, 3.5IN, 2.0DBI Antenna (70-0012-SA)</li> <li>• Power Supply (24-5791-SA)</li> </ul>
Other AMX Products:	<ul style="list-style-type: none"> <li>• Mio Modero R-3 Remote (<b>FG148-03</b>)</li> <li>• Mio Modero R-4 Remote (<b>FG148-04</b>)</li> <li>• NXR-ZGW-PRO ZigBee Pro Gateway (<b>FG5791-11</b>)</li> <li>• NXA-WAP 2413A Mounting Bracket (<b>FG2255-24</b>)</li> </ul>

### Things To Consider Before Starting

Several factors will help decide the best place to install NXR-ZRP-PRO devices. Before installing, consider the following:

#### Location and Antenna Direction

The best location for NXR-ZRP-PRO devices are usually in the center of your wireless network, with line of sight to all of your mobile devices. Try to place the antenna in a position that can best cover your wireless network. Normally, the higher you place the antenna, the better performance you receive.

**Note:** For minimal interference, try to keep any installed NXR-ZRP-PRO at least 10' (3.048m) from any WiFi access points.

**NOTE (Mio R-3 or R-4 Users):** Due to the wireless nature of the ZigBee network, temporary interference (such as leaving a room or large objects passing between the controller and its gateway device) may prevent a command from reaching the NetLinX master. **If this happens while increasing volume, the master may receive the command to increase the volume but not the command to stop increasing it.** Therefore, programmers should consider setting safeguards for volume control, either established volume limits or timeouts with the NetLinX master or more interactive adjustment from the remote (i.e., direct volume control), to prevent issues with lost commands.

**NOTE:** The NXR-ZRP-PRO NetLinX ZigBee Pro Repeater is optimized for the ZigBee Pro 2007 protocol, and may not be connected to a ZigBee 2004 or 2006 network. For older ZigBee networks, the NXR-ZRP (FG5791-02) should be used instead.

### Connecting Power to the NXR-ZRP-PRO

The NXR-ZRP-PRO utilizes a 2-pin 3.5 mm mini-captive wire connection. In order to power the NXR-ZRP-PRO, the following steps are necessary:

#### Preparing captive wires for the 2-pin 3.5 mm captive wire connector

You will need a wire stripper and flat-blade screwdriver to prepare and connect the captive wires.

1. Strip 0.25 inch (6.35 mm) of wire insulation off all wires.
2. The PWR and GND cable from the 12 VDC power supply must be connected to the corresponding location on the 2-pin 3.5 mm mini-captive wire connector (FIG. 2).

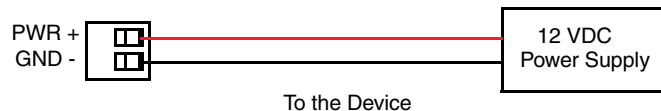


FIG. 2 12 VDC Power Connector Wiring Diagram

3. Tighten the clamp to secure the two wires. Do not over-torque the screws; doing so may strip the threads and damage the connector.
4. Verify the connection of the 2-pin 3.5mm mini-captive wire to the power supply.

### Connecting The NXR-ZRP-PRO To A Network

The NXR-ZRP-PRO itself has no connection to a network other than through its ZigBee Pro gateway. To set up a ZigBee Pro gateway so it will accept a NXR-ZRP-PRO into its ZigBee network, please refer to the *NXR-ZGW-PRO-ZRP - PRO Operation/Reference Guide*, available at [www.amx.com](http://www.amx.com).

## Setting Up A Network

After you have established the location of the gateway, connected it, provided power, and placed the device in either a rack or wall installation, you can then begin configuring the NXR-ZGW-PRO and adding an NXR-ZRP-PRO and ZigBee-compatible devices to the network.

1. Confirm the NXR-ZGW-PRO is receiving power by checking the PWR LED on the front of the device.
2. Using a PC connected to your NetLinx system, open a web browser equipped with Zeroconf or NetLinx Studio 3. The NXR-ZGW-PRO will show up in the Zeroconf list as AMX NXG-ZGW SN# XXXX ("XXXX" being the 16-digit serial number of the NXR-ZGW-PRO). Double click on the device and the NXR-ZGW-PRO Browser-based Configuration Manager will be brought up. If Zeroconf is not available, open a telnet session with the master and use the command "show system" to obtain the IP address of the NXR-ZGW-PRO. If more than one master is on the subnet, the NXR-ZGW-PRO will connect to the first one it senses, so having only one master is highly recommended.
3. Go to the NetLinx setup page and configure the NXR-ZGW-PRO to communicate with the master.
4. Go to the *PAN/Network* tab and enable the wireless network.
5. Turn on ZigBee-compatible devices one at a time, e.g., Mio R-3, Mio R-4 or NXR-ZRP-PRO. This ensures that they are fully booted up before attempting to join the network.
6. Go to the *Pan/Commissioning* tab and allow joining. This enables joining for one minute and may need to be repeated periodically.
7. Start a network survey and select the appropriate extended PAN ID.
8. For devices that do not have displays, such as the NXR-ZRP-PRO, or ones that have an insufficient display to allow selection of the PAN ID to join a network, place each device one at a time near the gateway, turn on one of the devices, and configure it using the gateway web pages before turning on the next one. Once configured, use the PAN pages to change the devices over to a new PAN ID.

**NOTE:** If a repeater has been previously configured to a PAN, it must be reset to factory defaults before it can join a different PAN.

This method may also be used if you do not want to go to each ZigBee compatible device to set the PAN ID. However, once each device is set, the change must be made to the gateway itself. It may be necessary to cycle power on each device for them to come online.

9. Due to the wireless nature of the ZigBee network, temporary interference (such as leaving a room or large objects passing between a remote and its gateway device) may prevent a command from reaching the NetLinx master. If this happens while increasing volume, the master may receive the command to increase the volume but not the command to stop increasing it. For more information, please refer to the *ZigBee Tips Installation Guide*, available at [www.amx.com](http://www.amx.com).

## Personal Area Network

### Enabling and disabling the wireless network

1. In the menu on the top of the NXR-ZGW-PRO Browser-based Configuration Manager, select *Pan/Network*.
2. Click the **Enabled** radio button in the *Network* section to enable the wireless network or select *Disabled* to disable the network.
3. Select a channel, or leave set to *Any* and the device will automatically select the best channel.
4. Click **Accept**.

### Connecting devices to a PAN

1. In the menu on the top of the NXR-ZGW-PRO Browser-based Configuration Manager, select *Pan/Commissioning*.
2. If the device is not on the network and is set to factory defaults, make sure the device is powered and click the **Allow Joining** button.
3. Wait for the device to show up in the *Commissioning* tab.
4. Click on the *EUI-64* link to open the *Device Details* page.
5. In the *Extended PAN ID* field, enter the desired Extended PAN ID for the repeater within the network. This field will default to the current network.
6. Click **Update Settings**.
7. Repeat steps 1-6 for each repeater to be added to the network.

## Utilities

### Allowing firmware updates to devices

1. In the menu on the top of the NXR-ZGW-PRO Browser-based Configuration Manager, select *Device Firmware* under the section *Utilities*.
2. Choose the device to be updated by its EUI-64 number.
3. To allow updates to individual devices, click the button next to the device's EUI-64 number in the *Allow Updates* column. The page will automatically refresh, displaying the device's new status.
4. To update all of the devices on a network, click *All On* or *All Off* in the *Allow Updates* column to allow or block upgrades to all devices on the network. The page will automatically refresh, displaying the new status of all network devices.
5. Some devices cannot have their firmware update status changed; these devices will continue to read *Off* even after selecting to allow new updates.

## Patents

This product employs or practices certain features and/or methods of one or more of the following patents:

SIPCO, LLC

U.S. Patent No. 7,103,511

U.S. Patent No. 6,914,893

U.S. Patent No. 7,697,492

